



Complex PCI 2018 Case Presentation

An Insensible Loss

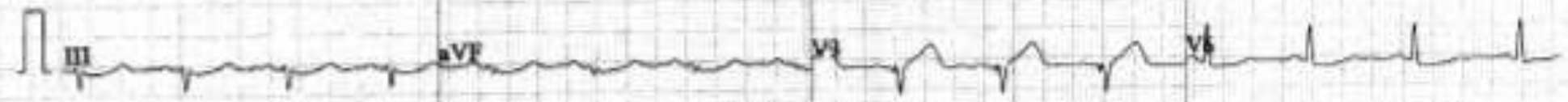
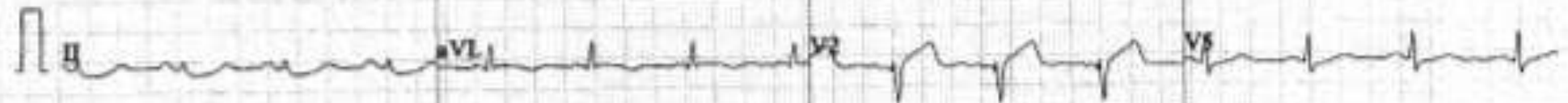
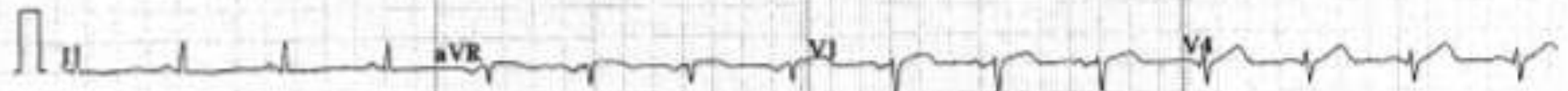
Timothy KC Un
Queen Mary Hospital, Hong Kong

Patient History

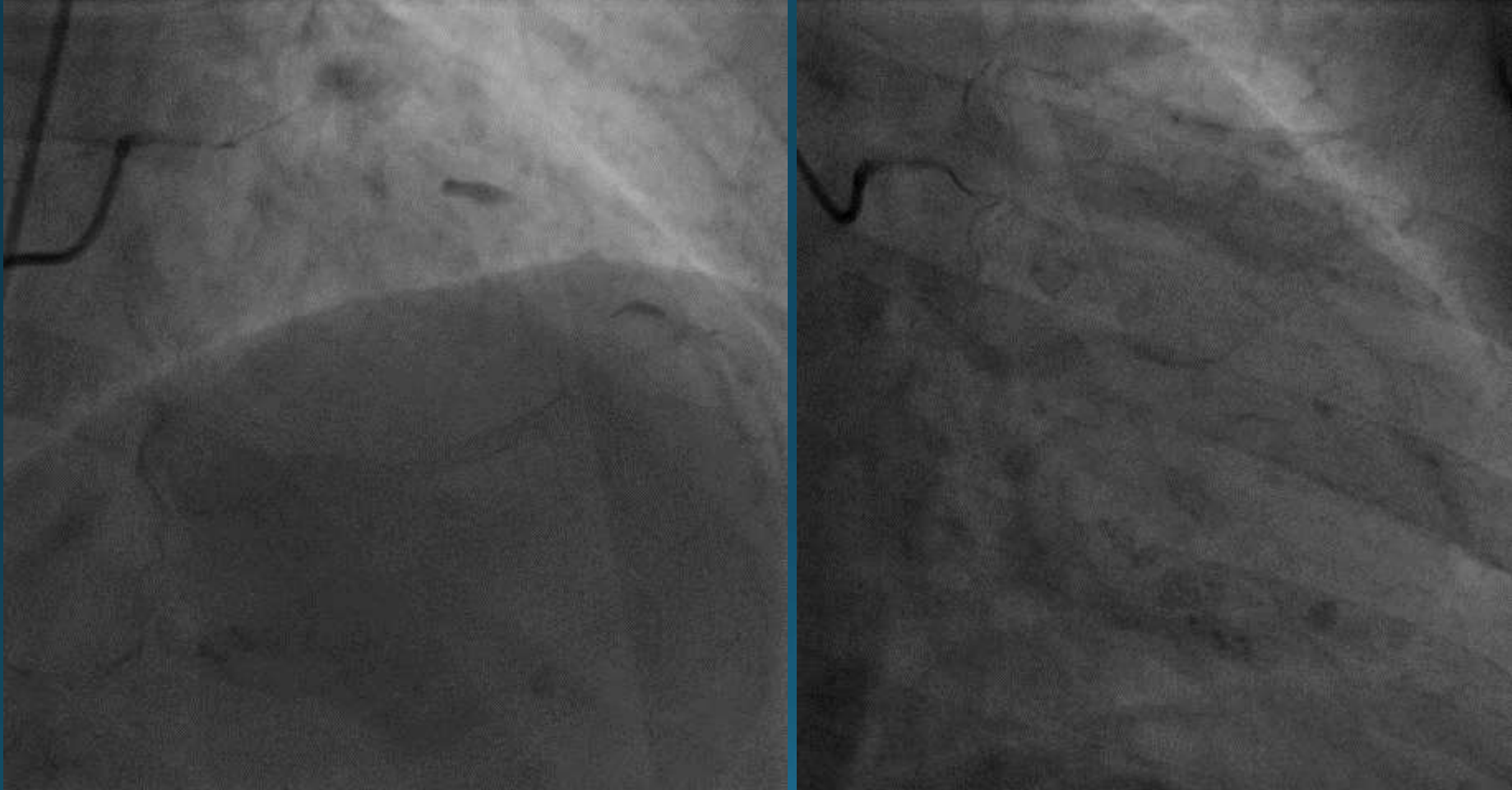
Ms KF, Yip

- 76/F, HT
- Acute onset of central chest pain for 2 hours
- BP 110/65, P 90, SaO₂ 95%
- ECG: anterior STEMI
- Echo: Impaired LV, LAD territory hypokinesia, EF ~40%. Mild MR, TR.

- Transferred to cath lab for PPCI



Coronary angiograms



LAD/D1 (1,1,1) bifurcation lesion, pLCX 90%

Coronary angiogram



Progress

- On aspirin, ticagrelor
- Bolus of IV heparin given

- What would be our approach of PCI?
 - A. Wire to LAD and PCI, neglect the D₁
 - B. Wires to LAD and D₁, provisional stenting (T, TAP)
 - C. 2-stent bifurcation stenting (mini crush)
 - D. 2-stent bifurcation stenting (Culotte)
 - E. 2-stent bifurcation stenting (DK crush)

ORIGINAL RESEARCH ARTICLE

Long-term outcomes of provisional stenting compared with a two-stent strategy for bifurcation lesions: a meta-analysis of randomised trials

Ramez Nairooz,¹ Marwan Saad,¹ Islam Y Elgendy,² Ahmed N Mahmoud,² Fuad Habash,³ Partha Sardar,⁴ David Anderson,² David M Shavelle,⁵ J Dawn Abbott⁶

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/heartjnl-2016-310929>).

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ABSTRACT

Background The optimal interventional technique for addressing coronary bifurcation lesions is debatable. Long-term clinical outcomes with provisional stenting (PS) compared with a two-stent (TS) strategy for bifurcation lesions are scarce. We aim to perform the first meta-analysis of randomised controlled trials (RCTs) to explore long-term outcomes comparing both strategies.

Methods An electronic search was performed for online databases until August 2016 for RCTs comparing PS with TS for bifurcation lesions reporting outcomes at 1 year of follow-up or more. Random effects model risk ratios (RRs) were calculated for outcomes of interest.

Results Eight RCTs with a total of 2778 patients reported long-term clinical outcomes. At mean follow-up of 3.0 ± 1.6 years, PS was associated with lower risk of all-cause mortality (RR=0.66; 95% CI 0.45 to 0.98; $p=0.04$) compared with TS for bifurcation lesions. No difference was observed with PS compared with TS regarding major adverse cardiac events (MACE),

the MV and SB) for coronary bifurcation lesions reporting mostly short-term clinical outcomes.^{3–6} In a patient-level analysis of the largest two RCTs done to date, PS was associated with superior clinical and angiographic outcomes compared with TS at 9 months of follow-up.⁷ This was driven mostly by the results of BBC1 (British Bifurcation Coronary Study),⁸ as the clinical outcomes in NORDIC 1 (NORDIC Bifurcation Study 1) were equivocal.⁹

Current guidelines give a Class I recommendation for PS as the initial approach when the SB is not large and has only mild or moderate focal disease at the ostium.¹⁰ This recommendation is based on RCTs with short-term clinical follow-up. Multiple meta-analyses compared the two strategies for addressing bifurcation lesions however with multiple caveats; including observational studies¹¹ or studies with short-term follow-up.¹² Given the scarcity of long-term data with either strategy, we aim to perform the first meta-analysis of RCTs to

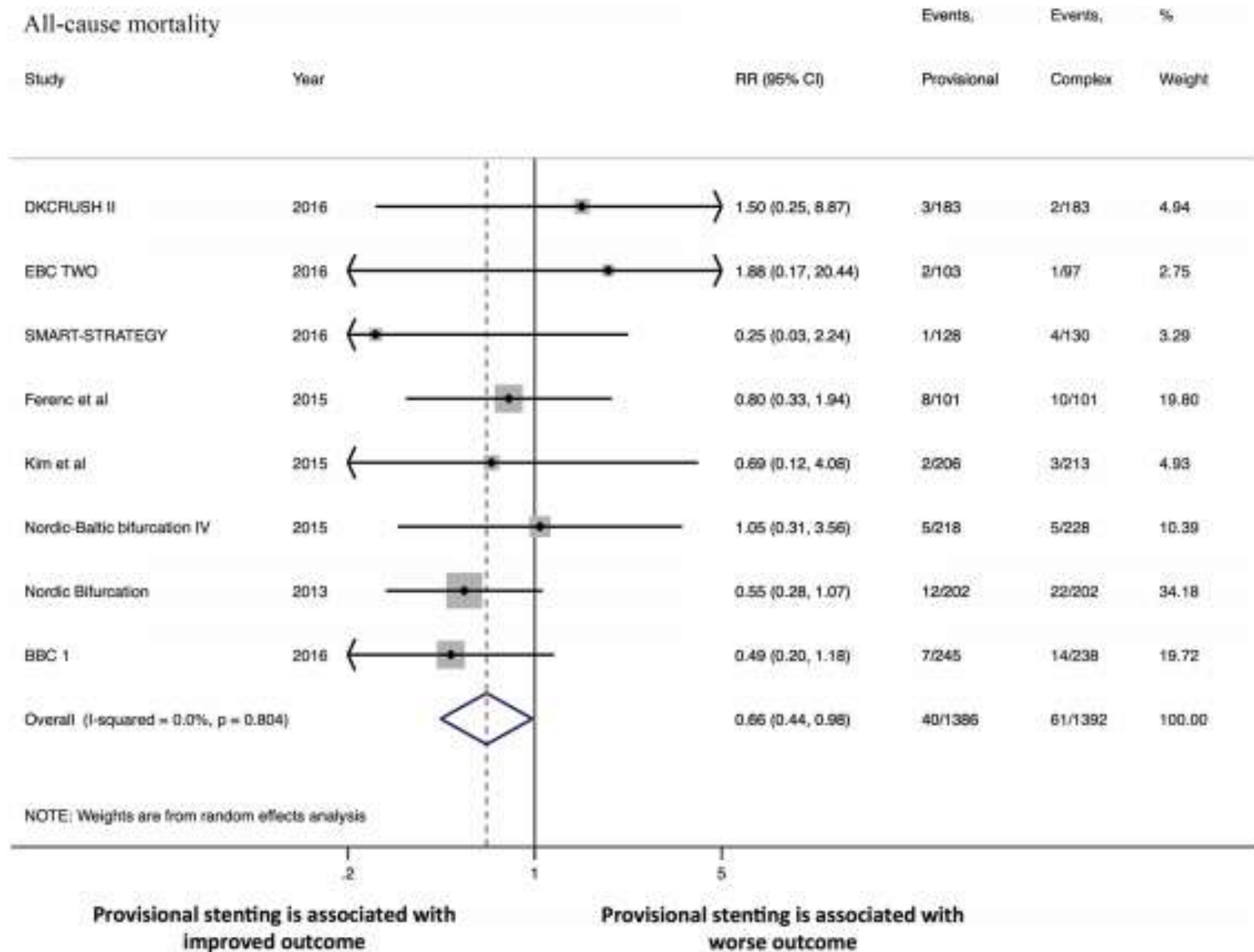


Figure 2 Primary outcome of interest.

Coronary artery disease

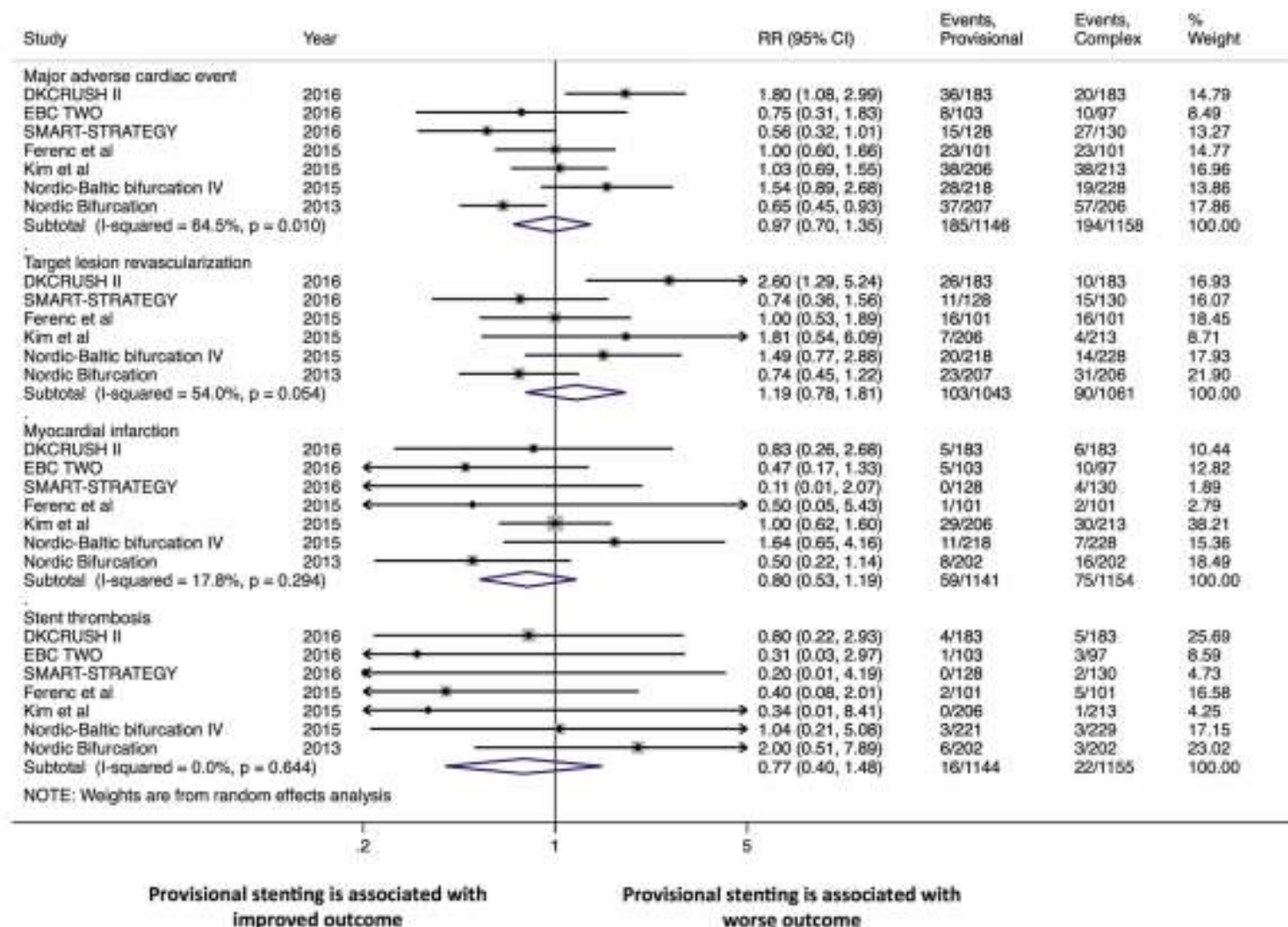


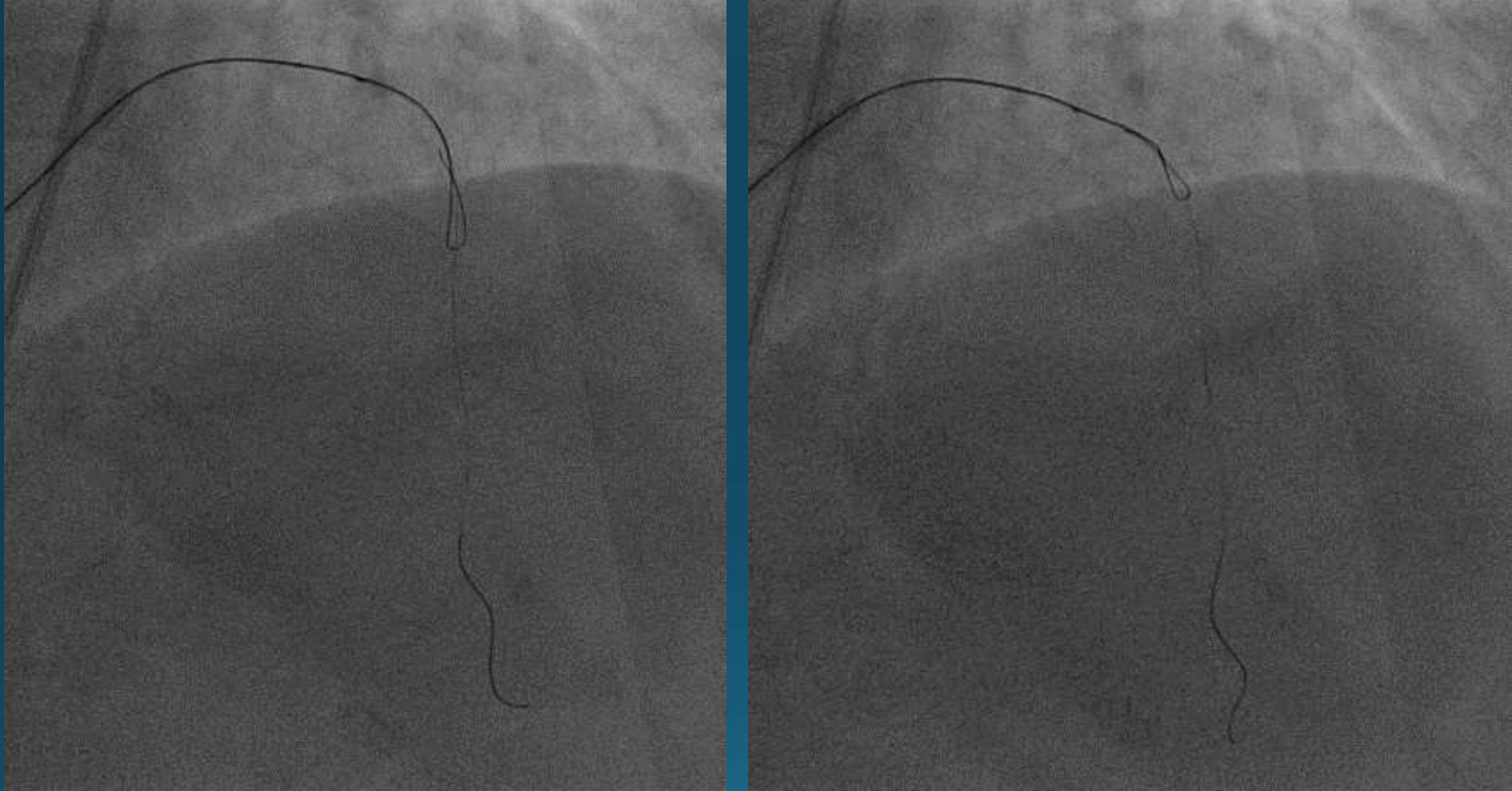
Figure 3 Secondary outcomes of interest.

Progress

- Planned for 2 wires to LAD, D1 and provisional stenting
 - Wire to LAD easily but wire cannot go to D1
 - Retroflex angle and tight ostial stenosis
 - Tried hydrophilic wires
- What would be our next step?
- A. Try balloon LAD and see
 - B. Try Crusade dual lumen catheter
 - C. Try supercross 90 or 120 microcatheter or Venture catheter
 - D. Try reverse wiring technique
 - E. Forget the D1, just do the LAD



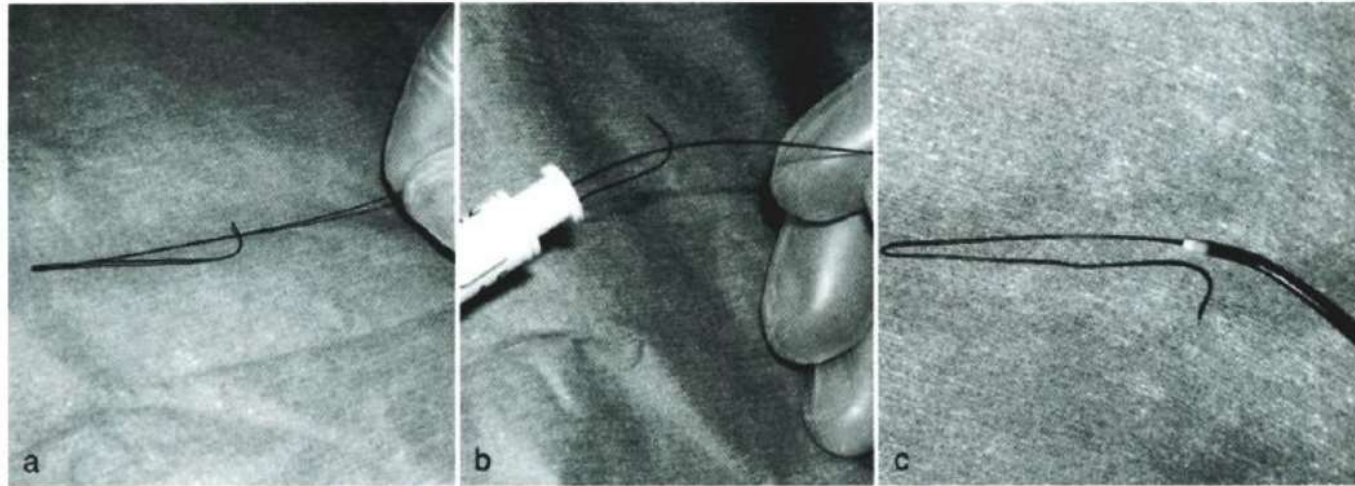
Angiograms



Reverse wiring: Fielder XTR on Crusade MC

Reverse wiring technique

Originally proposed by Dr. Kawasaki T (Shin Koga Hosp)
Catheterization and Cardiovascular Intervention, 2008

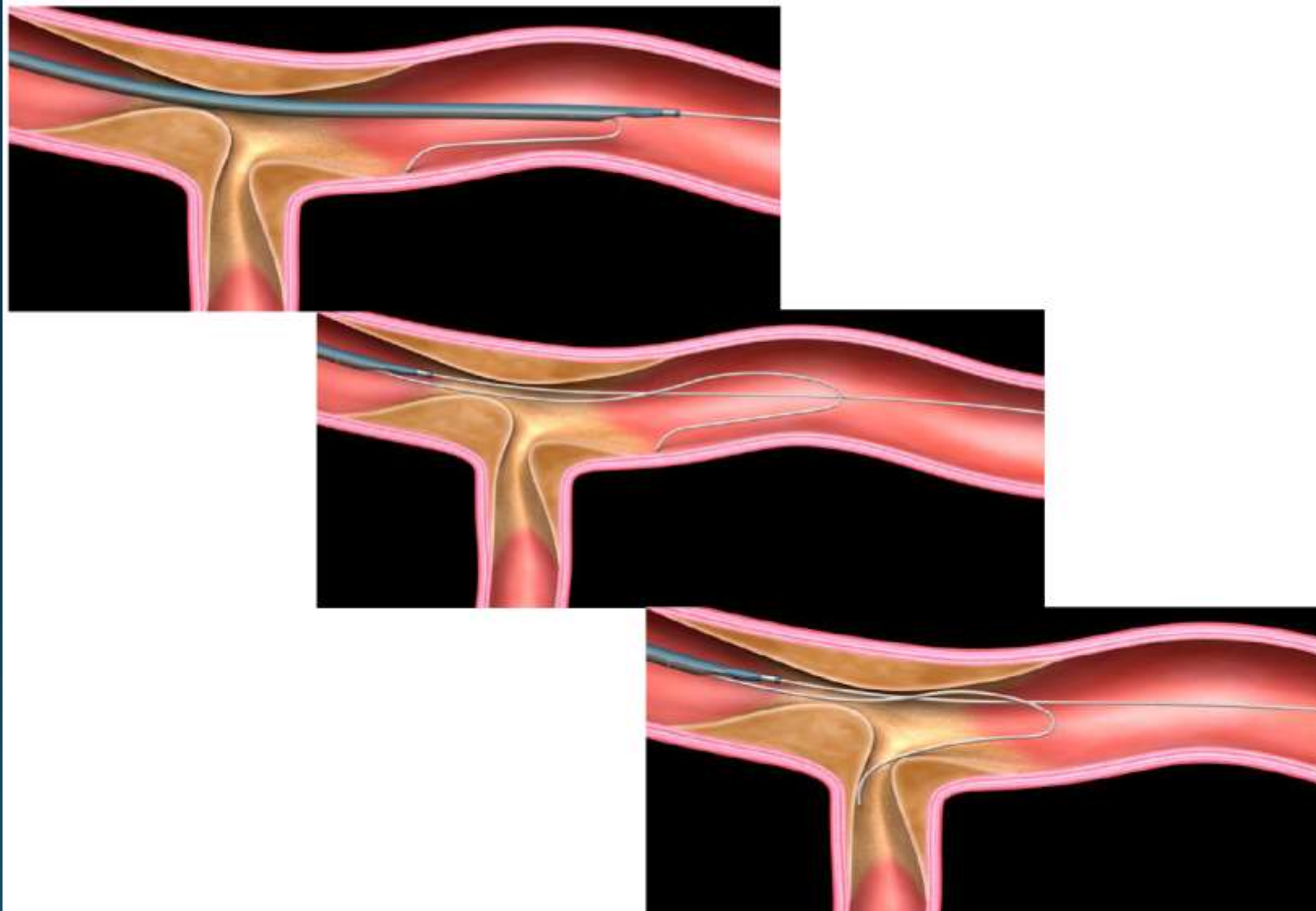


The GW is folded at the site of 2-5cm proximal from the tip.

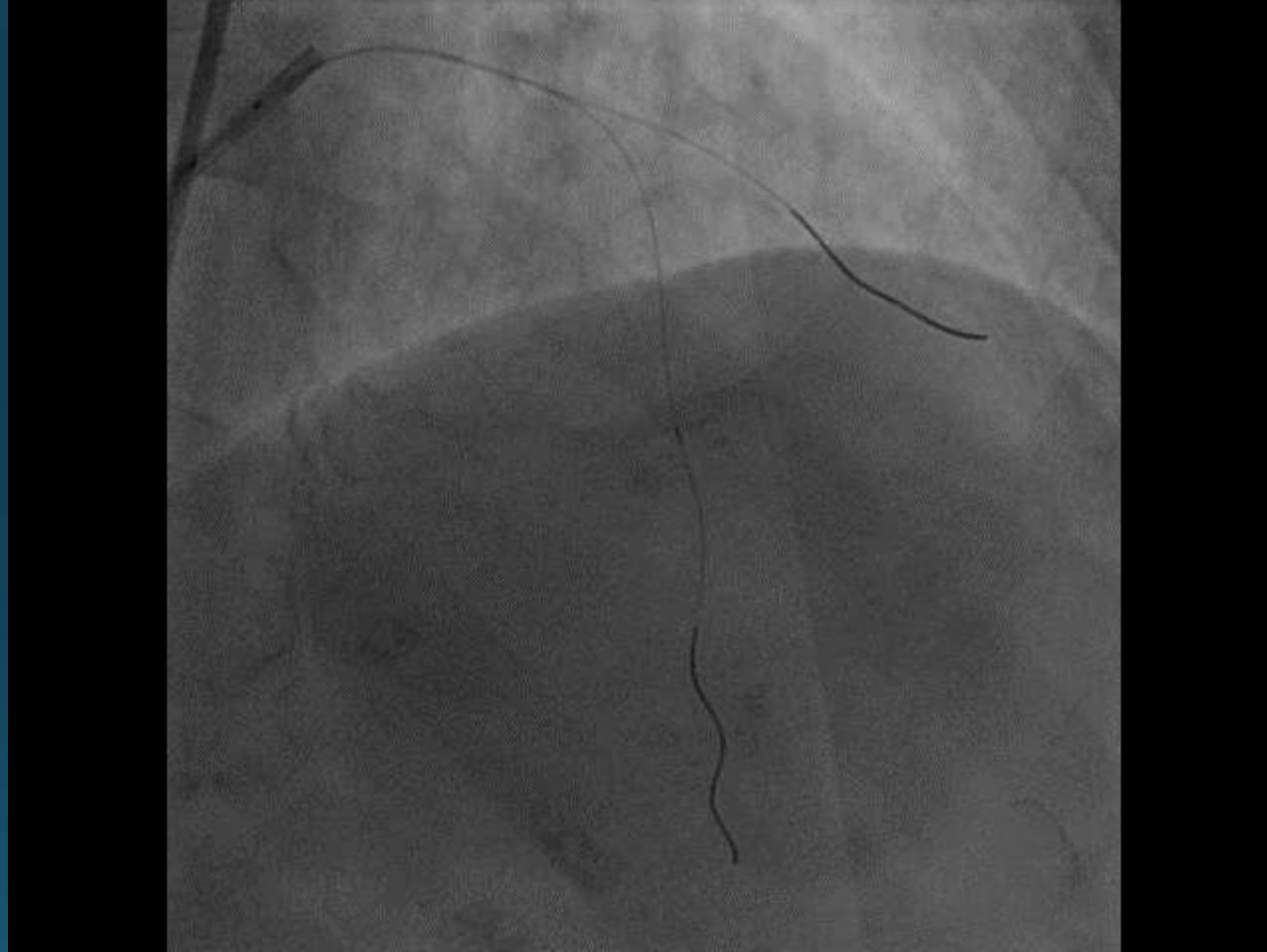
The folded GW is inserted directly into the guiding catheter.

The GW advances into the coronary artery while maintaining its folded position.

Reverse wiring technique: Crusade



Angiograms



2.0 balloon to LAD and D1

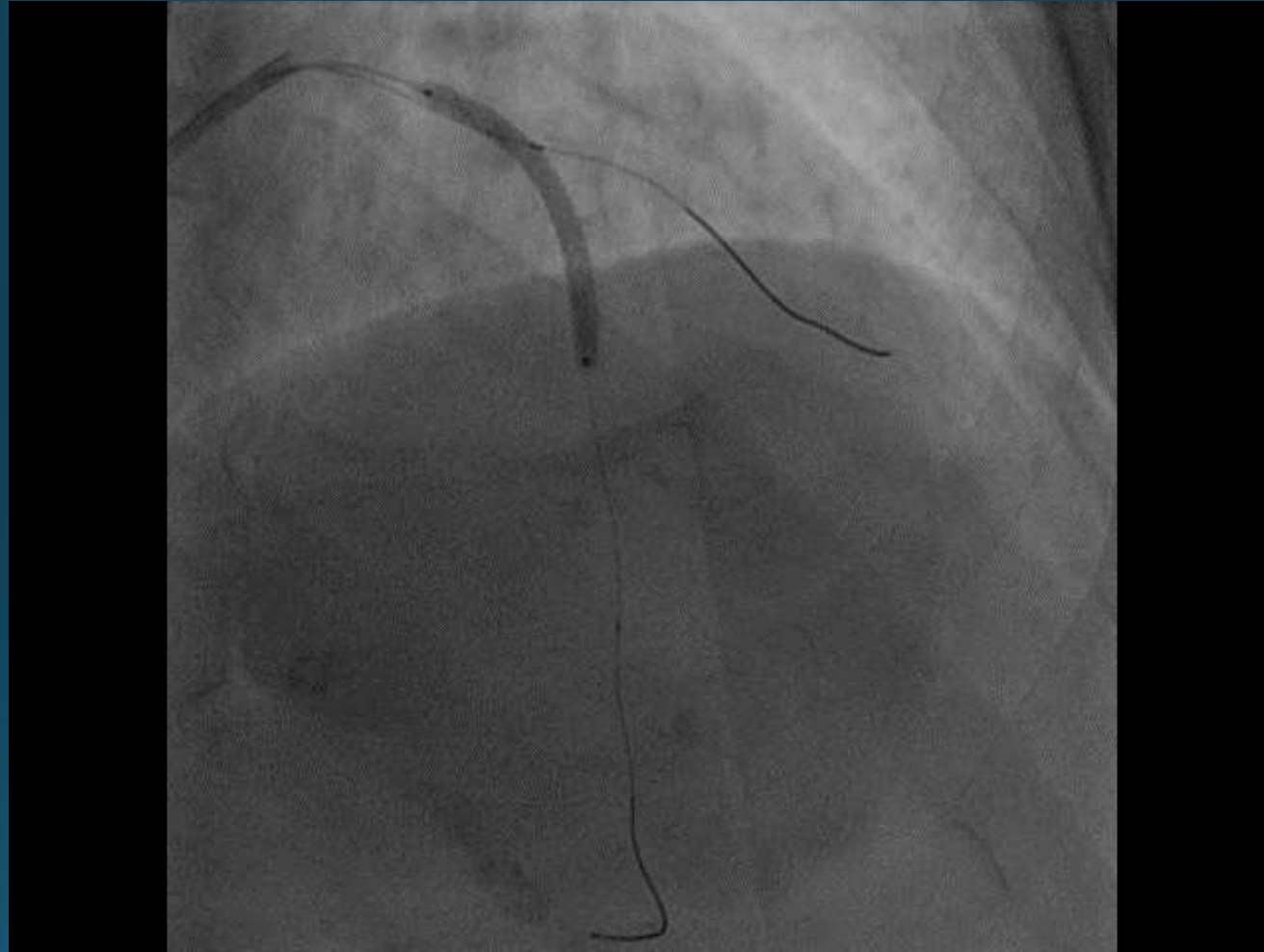
Progress

What would be your approach of stenting?

- A. Stent the LAD, Provisional stenting (T, TAP)
- B. 2-stent bifurcation stenting (mini crush)
- C. 2-stent bifurcation stenting (Culotte)
- D. 2-stent bifurcation stenting (DK crush)



Angiograms



Provisional stenting to LAD 2.5/34 with jailed balloon 1.5 at D1

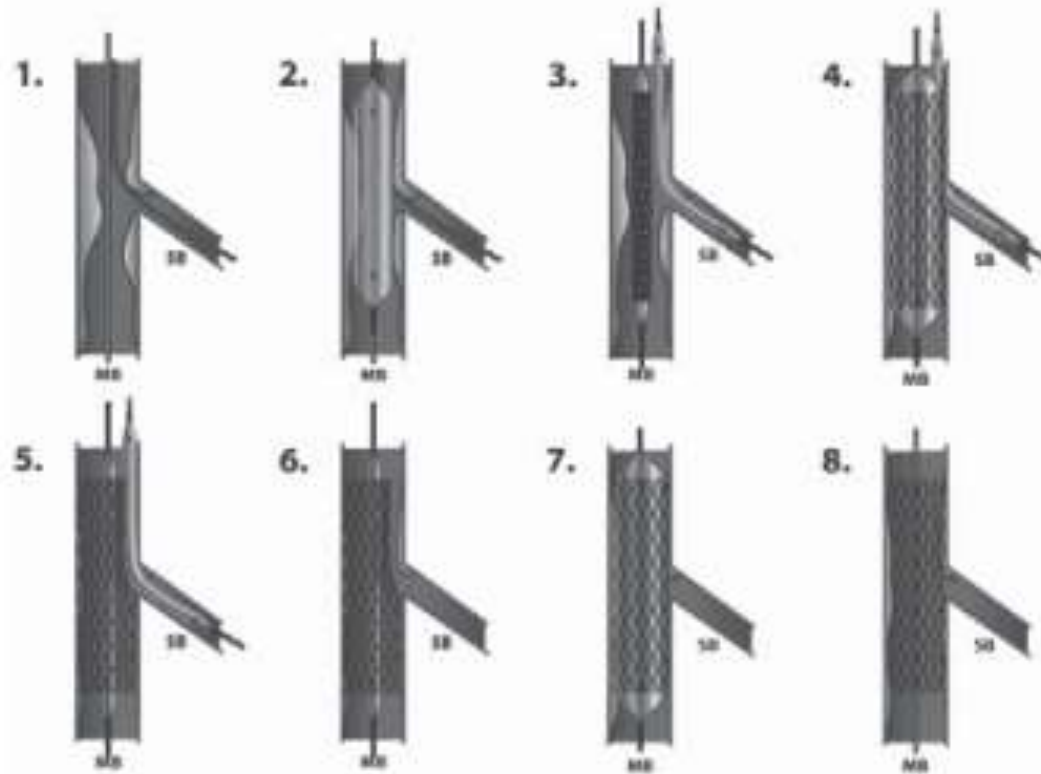
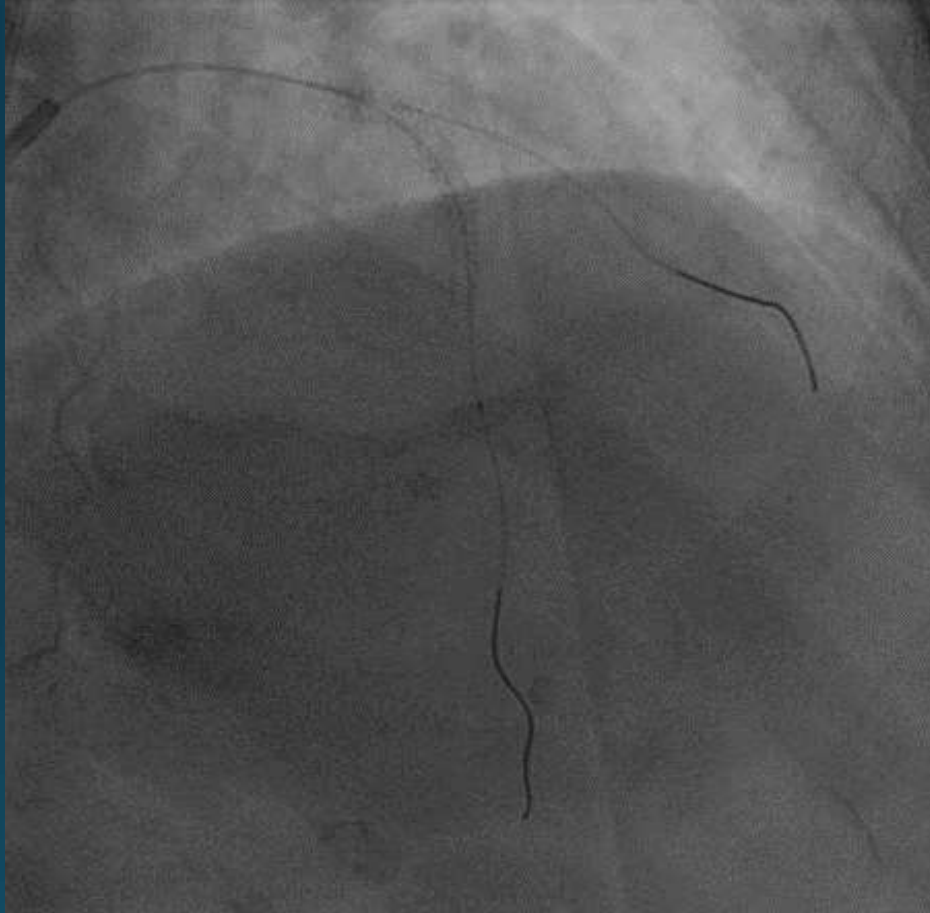


Figure 1.

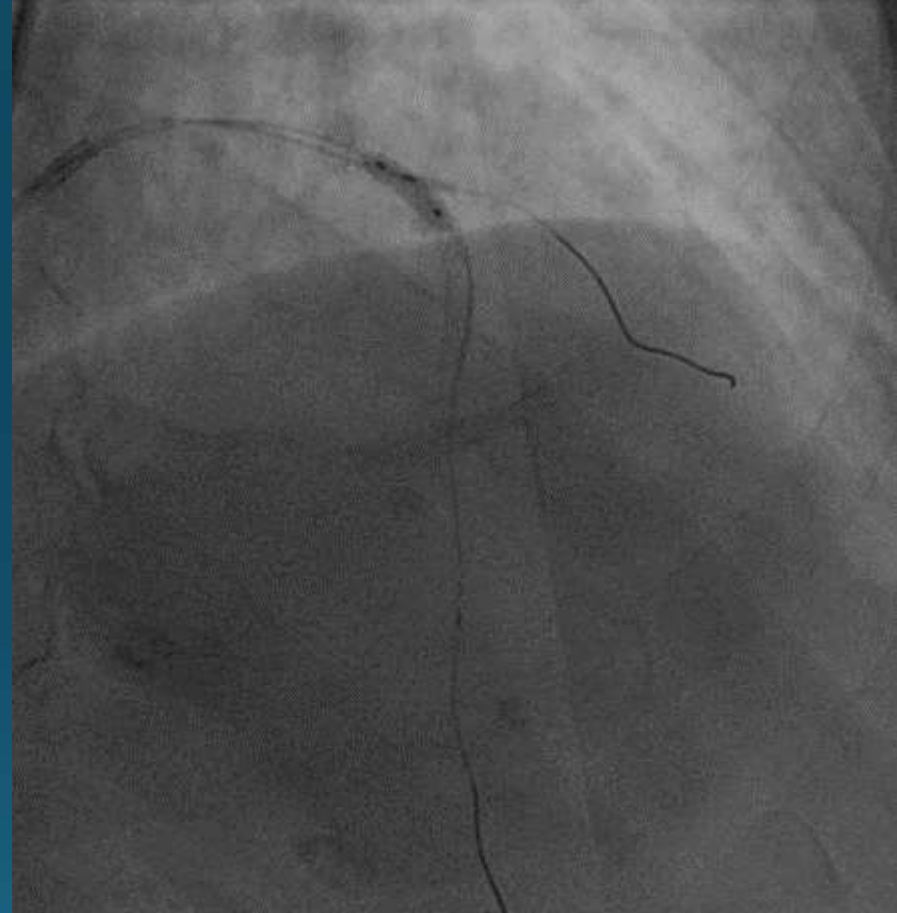
The "Jailed Balloon" Technique For Provisional Side-Branch Stenting

Patel, Y., Mathews, S., Cyrus, T., Zajarias, A., Bach, R., Kurz, H., . . . Singh, J. (2010). A Modified Provisional Stenting Approach to Coronary Bifurcation Lesions: Clinical Application of the "Jailed-Balloon Technique". *Journal Of The American College Of Cardiology*, 56(13), B34.

Angiograms



D1 rewired, LAD post dilate,
pLAD POT



KBI (3.0/1.5)

Angiograms

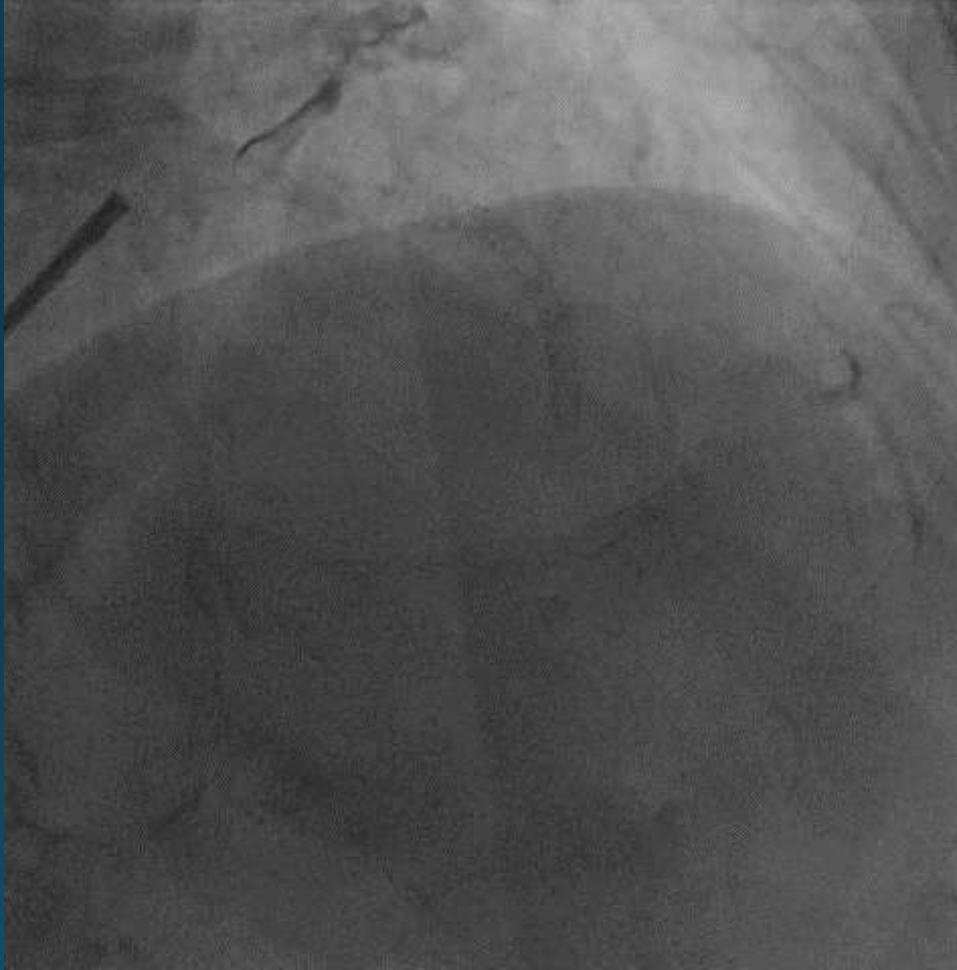


Post KBI (3.0/1.5)

What would you do to D₁?

- A. Leave it, TIMI 3 flow
- B. Use bigger balloon
- C. Use scoring balloon
- D. Use DEB
- E. Stent it (T or TAP)

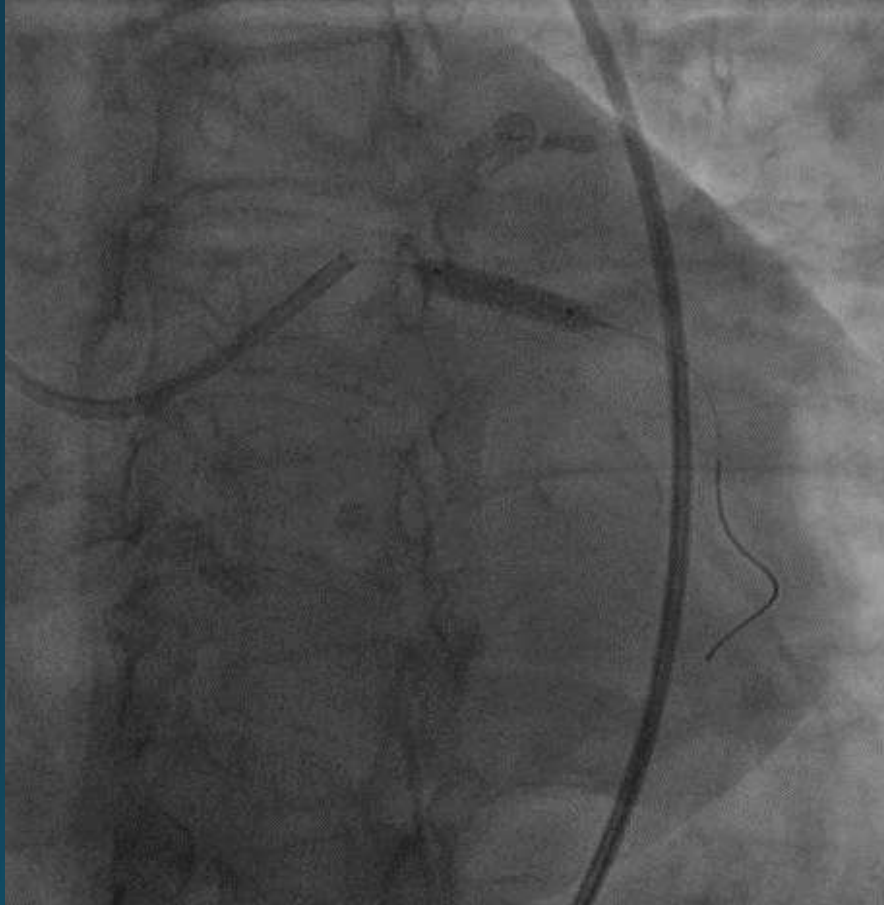
Angiograms



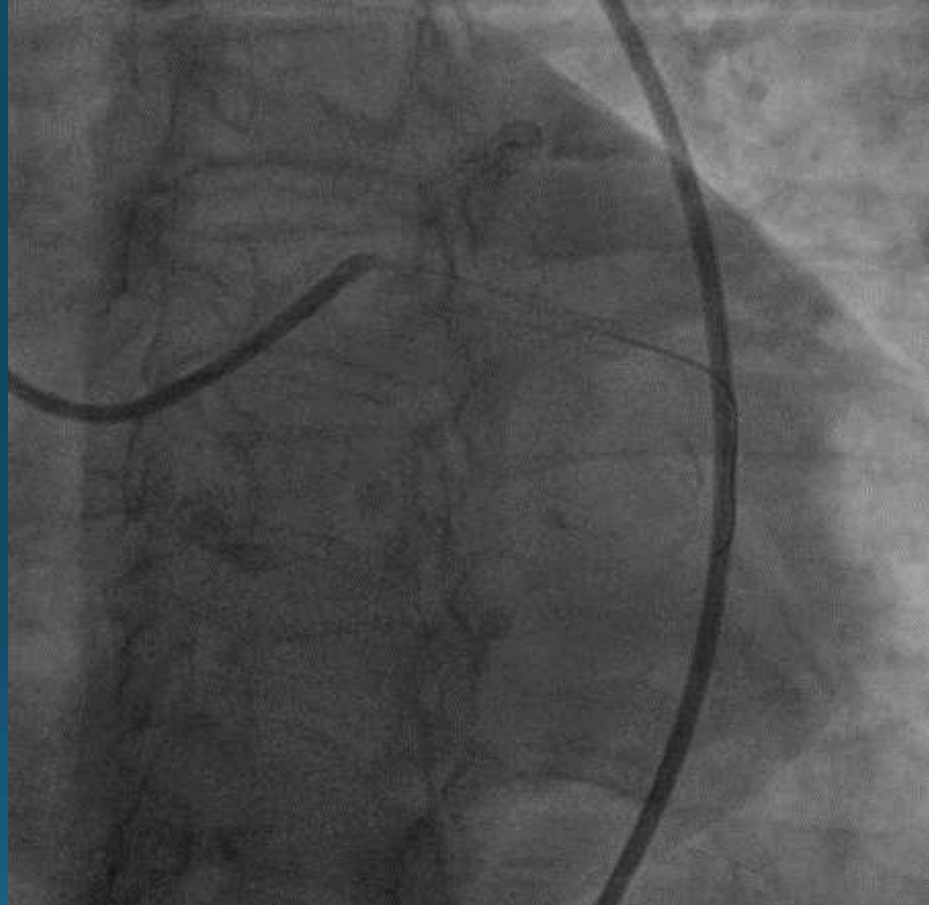
What would you do?

- A. Leave it, TIMI 3 flow
- B. Use bigger balloon
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- E. Stent it (T or TAP)

Angiograms



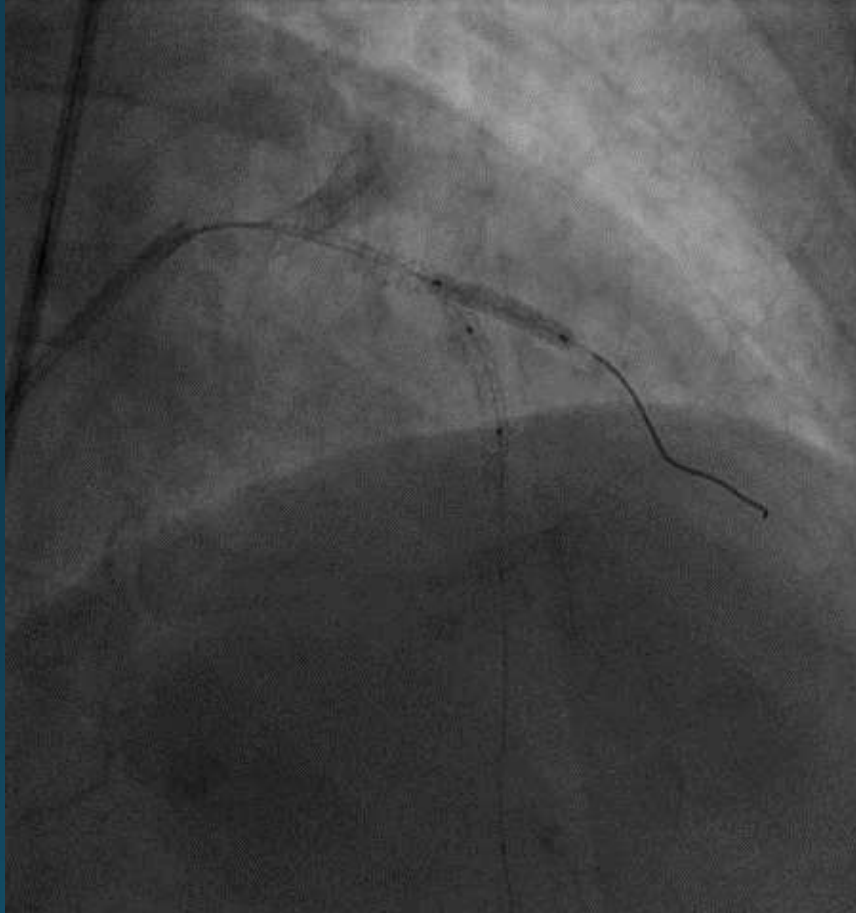
Wire, balloon and stent the
LCX



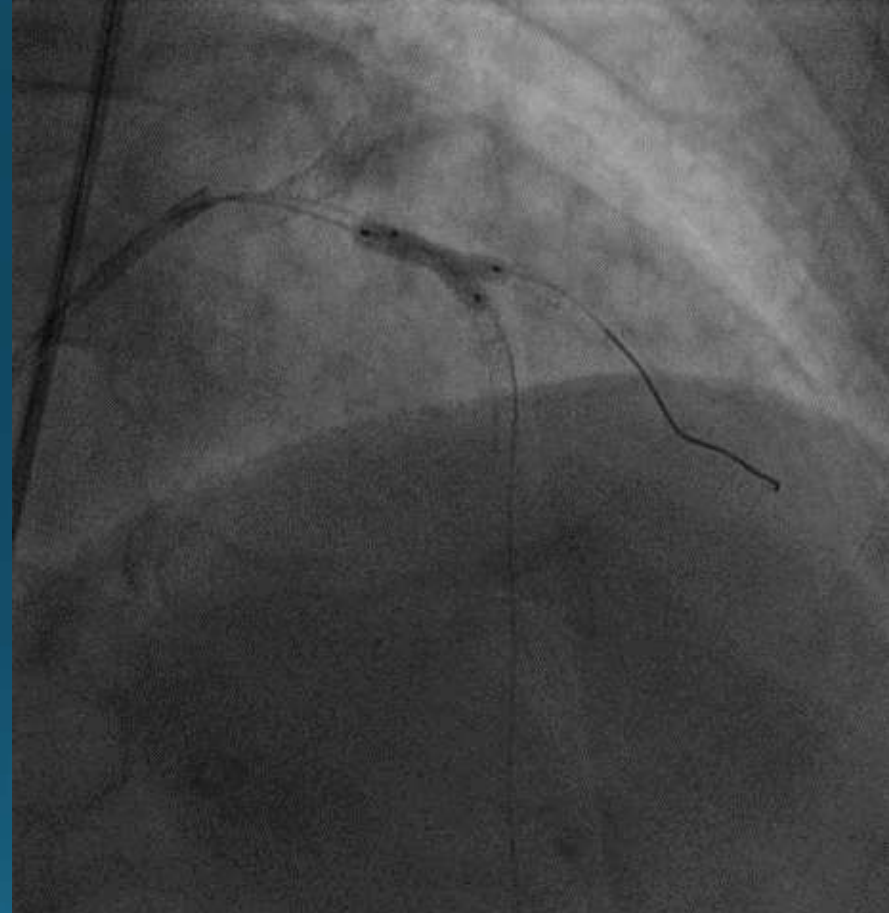
LCX 4.0 stent

Good angiographic result?

Angiograms

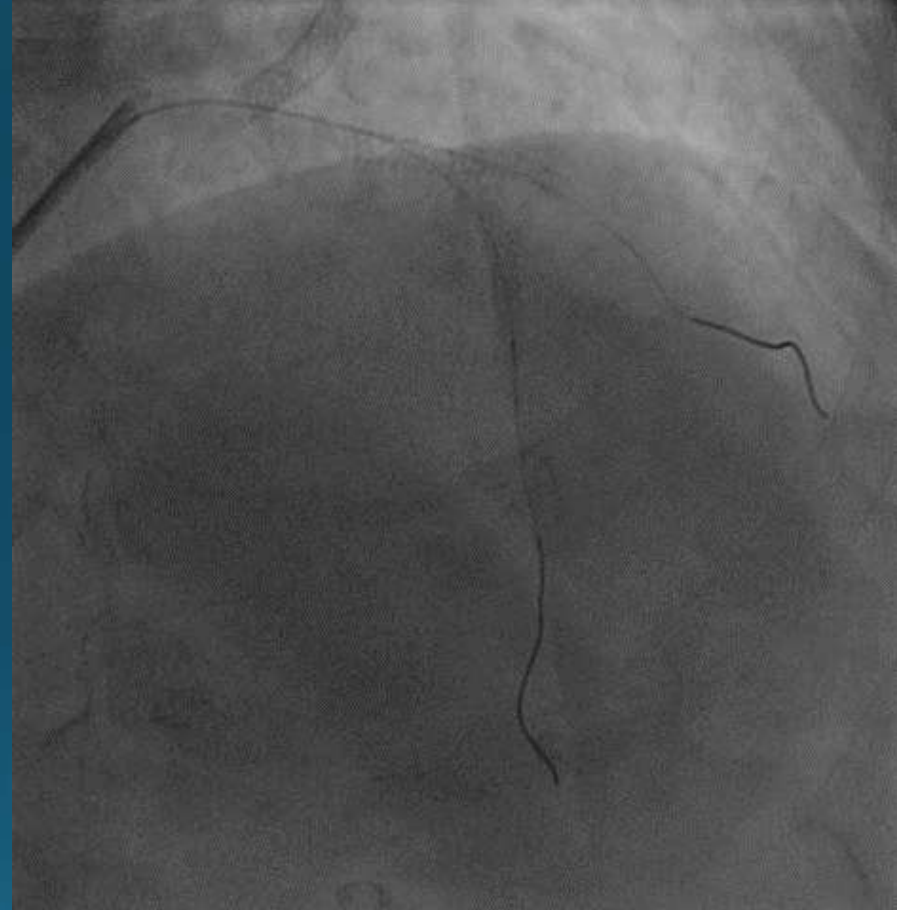


TAP stenting to D1 with DES
2.5/12

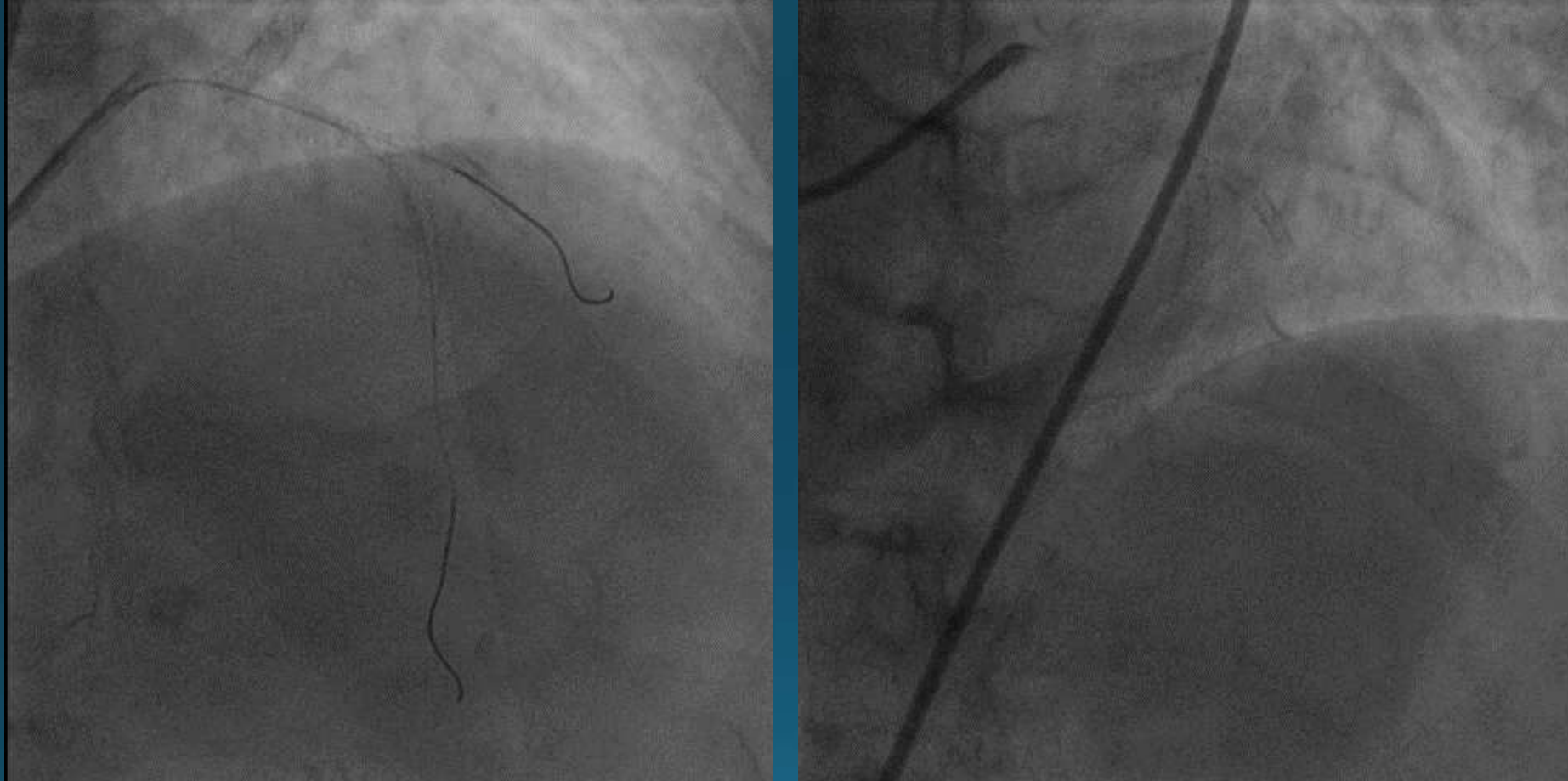


KBI with NC 2.5/3.0

Angiograms



Angiograms



Stent edge dissection at D1 and further stented with DES 2.25/8

Progress

- Post PPCI haemodynamically stable
- Discharged to convalescent hospital and undergone cardiac rehabilitation
- Stage PCI to RCA 1 months later



The Hong Kong Jockey Club Clinical Research Centre



THE UNIVERSITY OF HONG KONG FACULTY OF MEDICINE